

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference MAYZ 100	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US04/11579	International filing date (day/month/year) 15 April 2004 (15.04.2004)	(Earliest) Priority Date (day/month/year) 16 April 2003 (16.04.2003)
Applicant MAYZO, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures

Form PCT/ISA/210 (first sheet) (July 1998)

Docketed for 9-15-04 Rsp due

By: CP8

Date: 8-23-04

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11579

Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The abstract is too long (PCT Rule 8.1(b)). The abstract must be less than 150 words, or 200 words when no figure is to be published.

NEW ABSTRACT

An improved extruded polypropylene sheet that contains a high level of beta crystallinity and a process for making such sheets are disclosed herein. The polypropylene sheet contains at least one layer of resinous polymer of propylene and an effective amount of beta spherulites. The beta spherulites in the sheet are produced by incorporation of a beta nucleating agent in the polymer. The presence of the beta spherulites in the sheet facilitates the process of post-stretching the perforated sheet to produce a uniaxially or biaxially oriented mesh structure, and also broadens the temperature range over which this stretching can be performed. The final mesh has a lower density than a polypropylene mesh without beta spherulites. The perforated beta nucleated sheet also exhibits different stretching characteristics during the orientation steps such that more resinous polymer is drawn out of the node junction region between the machine direction and transverse direction oriented strands and a greater percentage of the web area has a solid polymer structure. This altered stretching behavior results in an oriented web that has higher strength and torsional rigidity characteristics. The lighter weight extruded beta nucleated sheet can also be stretched at higher line speeds, thereby reducing the manufacturing costs.

Form PCT/ISA/210 (continuation of first sheet(2)) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/11579

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B65D 71/00; B32B 7/02; C08J 9/00; C08F 110/00

US CL : 521/84.1, 90, 128, 143; 428/2, 36.6, 213, 216

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 521/84.1, 90, 128, 143; 428/2, 36.6, 213, 216

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,310,584 A (JACOBY et al) 10 May 1994 (10.05.1994), entire document.	1-14
Y	US 4,975,469 A (JACOBY et al) 04 December 1990 (04.12.1990), entire document.	1-14

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

Special categories of cited documents:

- *A* document defining the general sum of the art which is not considered to be of particular relevance
- *E* earlier application or patent published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

Z document member of the same patent family

Date of the actual completion of the international search

03 August 2004 (03.08.2004)

Date of mailing of the international search report

17 AUG 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Harold Y. Pyon

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Jean Proctor
 Patent Specialist

Form PCT/ISA/210 (second sheet) (July 1998)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITYTo:
RIVKA D. MONHEIT
400 COLONY SQUARE, SUITE 1200
1201 PEACHTREE STREET
ATLANTA, GA 30361

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference MAYZ 100		Date of mailing (day/month/year) 17 AUG 2004
International application No. PCT/US04/11579		FOR FURTHER ACTION See paragraph 2 below
International filing date (day/month/year) 15 April 2004 (15.04.2004)	Priority date (day/month/year) 16 April 2003 (16.04.2003)	
International Patent Classification (IPC) or both national classification and IPC IPC(7): B65D 71/00; B32B 7/02; C08J 9/00; C08F 110/00 and US Cl.: 521/84.1, 90, 128, 143; 428/2, 36.6, 213, 216		
Applicant MAYZO, INC.		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Harold Y. Pyon Telephone No. (571) 272-1700
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Form PCT/ISA/237 (cover sheet) (January 2004)

Docketed for _____
By: JS
Date: 8-23-04

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/11579

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____. which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Form PCT/ISA/237(Box No. I) (January 2004)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US04/11579

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>1-16</u>	YES
	Claims <u>NONE</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-16</u>	NO
Industrial applicability (IA)	Claims <u>1-16</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1 - 14 lack an inventive step under PCT Article 33(3) as being obvious over Jacoby et al. ('584) in view of Jacoby et al. ('469). Jacoby et al. ('584) teach a sheet having a crystalline resinous polymer of propylene having beta-spherulites present at a K-value of about 0.3 to 0.95 formed by incorporating a beta-nucleating agent into the propylene polymer in the amount of 0.1 to 10 ppm. The propylene is made from random or block copolymers of propylene mixed with ethylene or an alpha-olefin having 5 to 12 carbon atoms. Jacoby et al. ('584) does not teach the oriented sheet being made by the claimed process, having perforations or being oriented. Jacoby et al. ('469) teach an oriented porous polypropylene film made with a beta-nucleating agent having the claimed formula made through the process of extruding the film and cooling it to form the crystalline structure. Since both Jacoby et al. references teach a film made from the same materials, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to have provided the elements of the Jacoby et al. ('469) into Jacoby et al. ('584).

Claims 1 - 14 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

Form PCT/ISA/237 (Box No. V) (January 2004)